

ABSTRACT

Described are methods for acquiring optical near-field interaction signals in the infrared spectral region, involving the steps of: illuminating an object combination comprising at least two objects (1, 2) with infrared radiation so that an infrared near-field coupling is produced between the objects (1, 2); and acquiring the scattered light which is scattered by the object combination, which scattered light comprises a fraction (s) that has been modified as a result of the near-field coupling; wherein at least one of the objects (1, 2) comprises a polar material which at least in part comprises a polar solid-state structure; and during illumination in at least one of the objects (1, 2) with the polar material at least one phonon resonance is excited with which the modified fraction (s) of the scattered light is strengthened. Also described are applications of the method in the fields of metrology, data storage technology and optical signal processing.

(Fig. 2)